

STREET CROSSINGS

Module 3 Part 1: General Principles

Learning Outcomes

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At the end of this module, you will be able to:

- Describe how and why people cross the street
- Describe how drivers and pedestrians perceive each other
- Describe principles for users to cross a road safely
- Select midblock vs. intersection locations
- Identify how speed affects pedestrian safety

Why do people cross the street?

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Doylestown PA



Because there's someplace good on the other side



4

Depoe Bay OR

People shouldn't have to run to cross a street



5

Depoe Bay OR

Ideally, we'd always cross at locations with positive control



6

Depoe Bay OR

But we can't provide signals everywhere people cross



7

Depoe Bay OR

These people are not criminals...

- They're simply trying to deal with a situation



Pedestrian behavior varies: Some use crosswalks, others don't



Ped behavior varies: some cross midblock
(and do so safely)



Ped behavior varies: others cross at signal
(and do so safely)

General Principles

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1. Pedestrians want & need to cross streets safely
 2. Drivers need to understand pedestrians' intent
 3. Keep crossings short
 4. Speed Matters
 5. Pedestrians will cross where it's convenient
- Good design makes use of these principles

Principle # 1

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Oyster Bay NY



Pedestrians want & need to cross the street safely

Principle # 2

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Depoe Bay OR



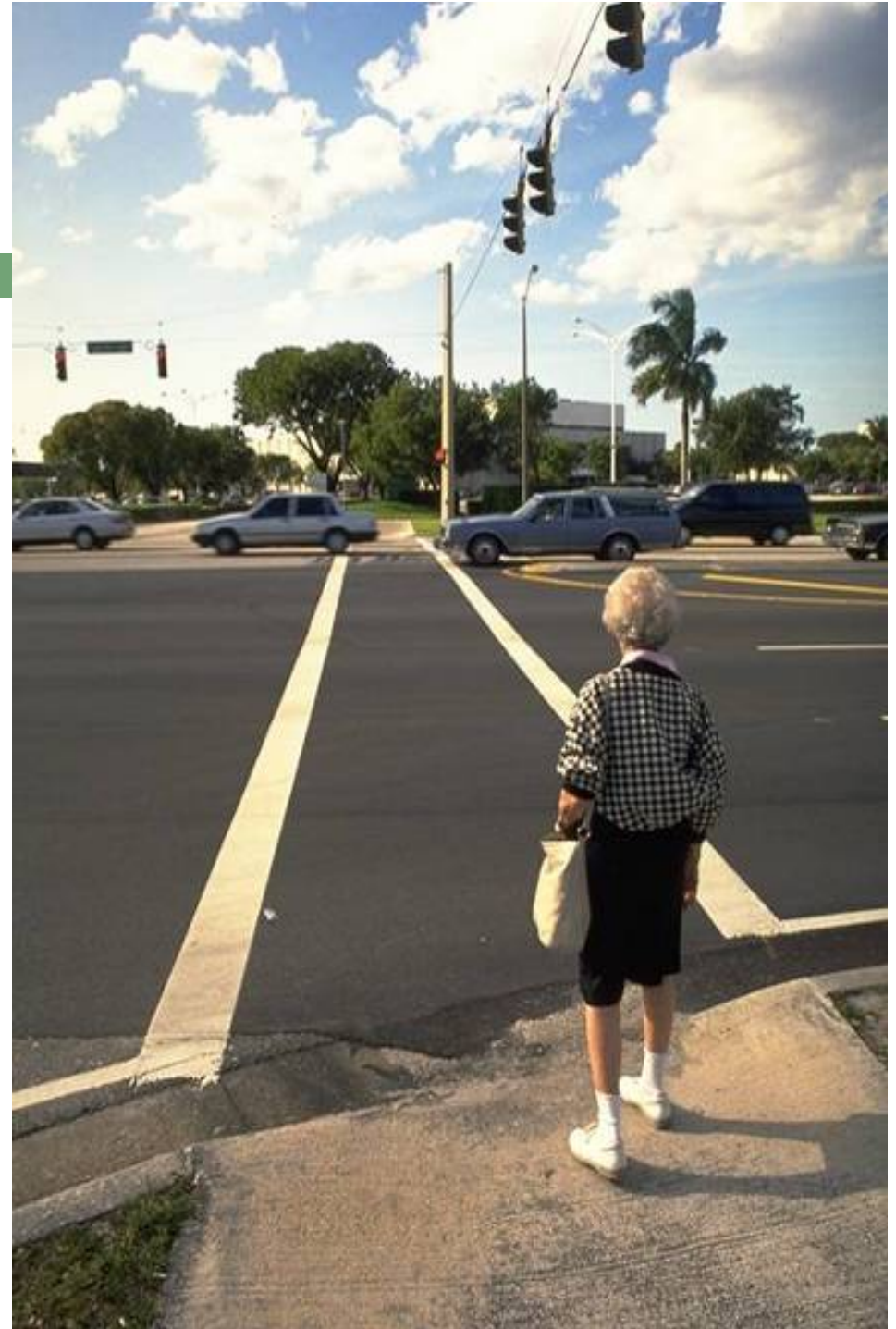
Drivers need to understand pedestrians' intent

Principle # 3

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Orlando FL

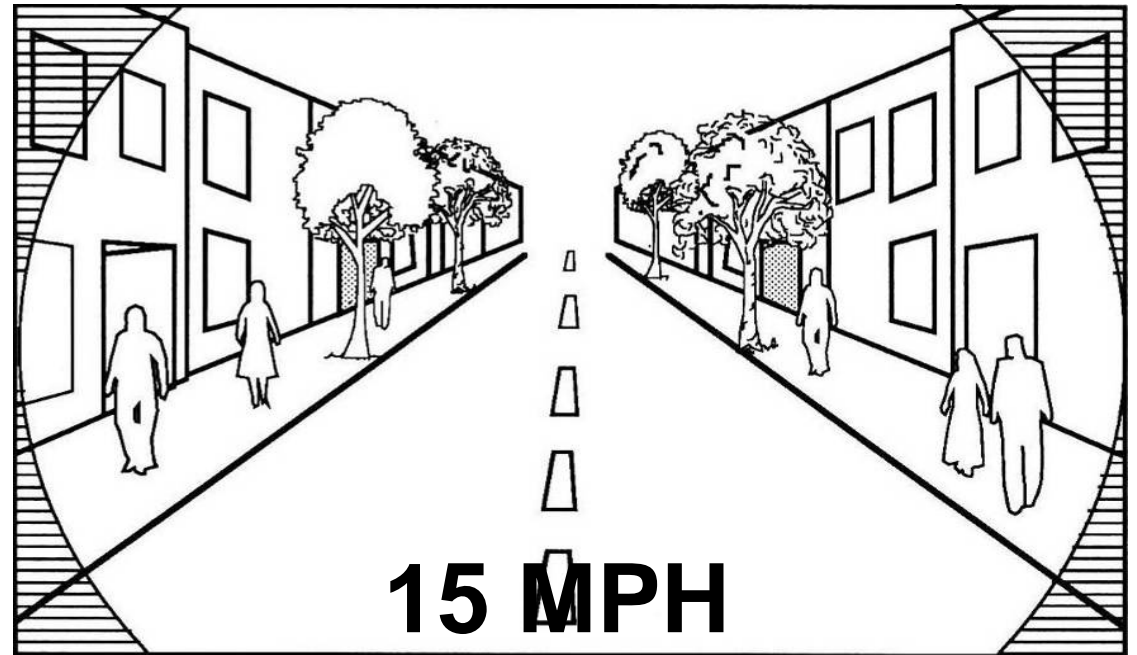
- Keep Crossings Short
- Impacts of long crossing distance:
 - ▣ Increases exposure time
 - ▣ Increases vehicle-pedestrian conflict
 - ▣ Increases vehicle delay
 - ▣ Decreases ability of slower pedestrians to cross



Principle # 4: Speed Matters

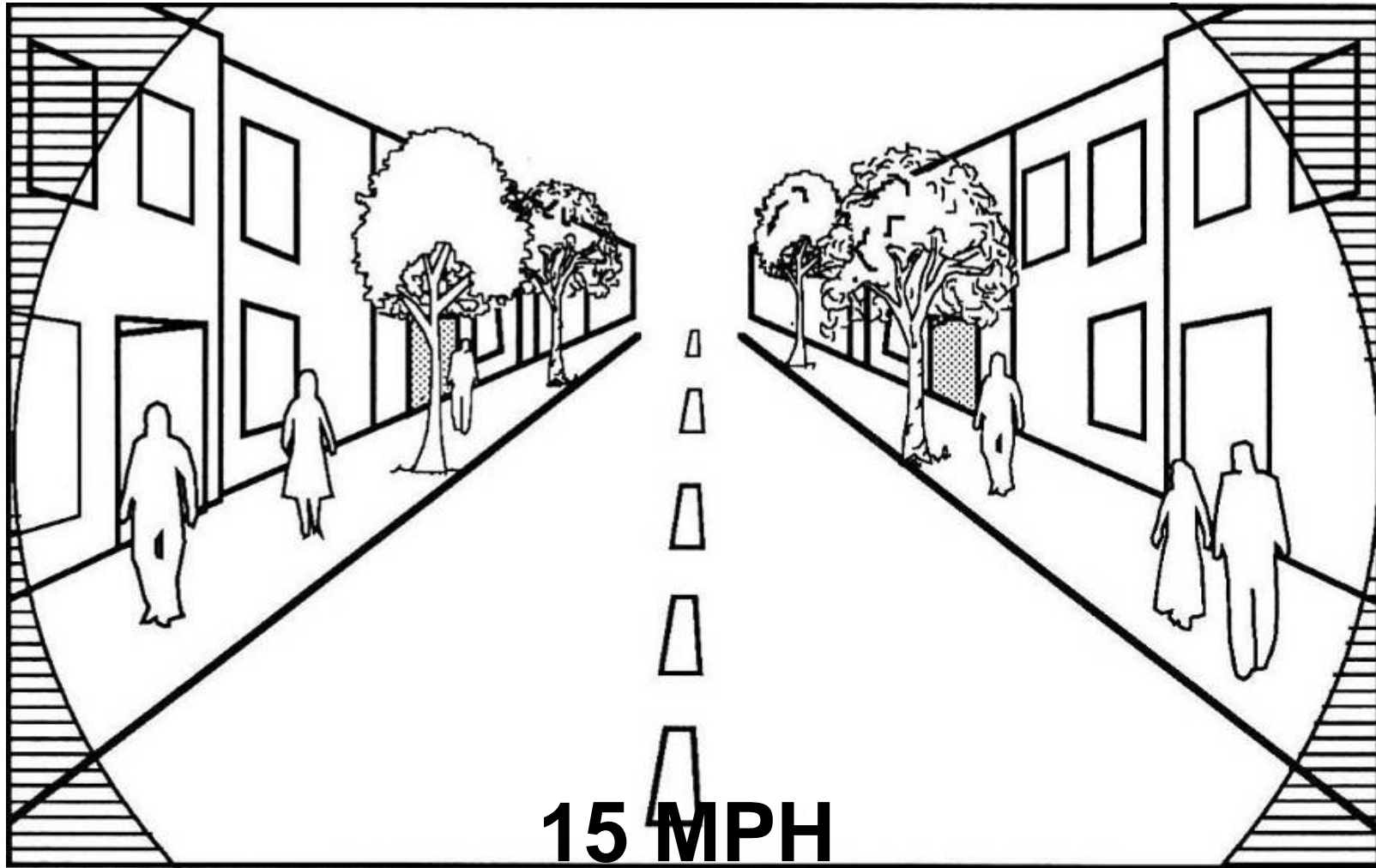
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- Drivers' field of vision & ability to see pedestrians
- Drivers' ability to react and avoid a crash
- Crash Severity



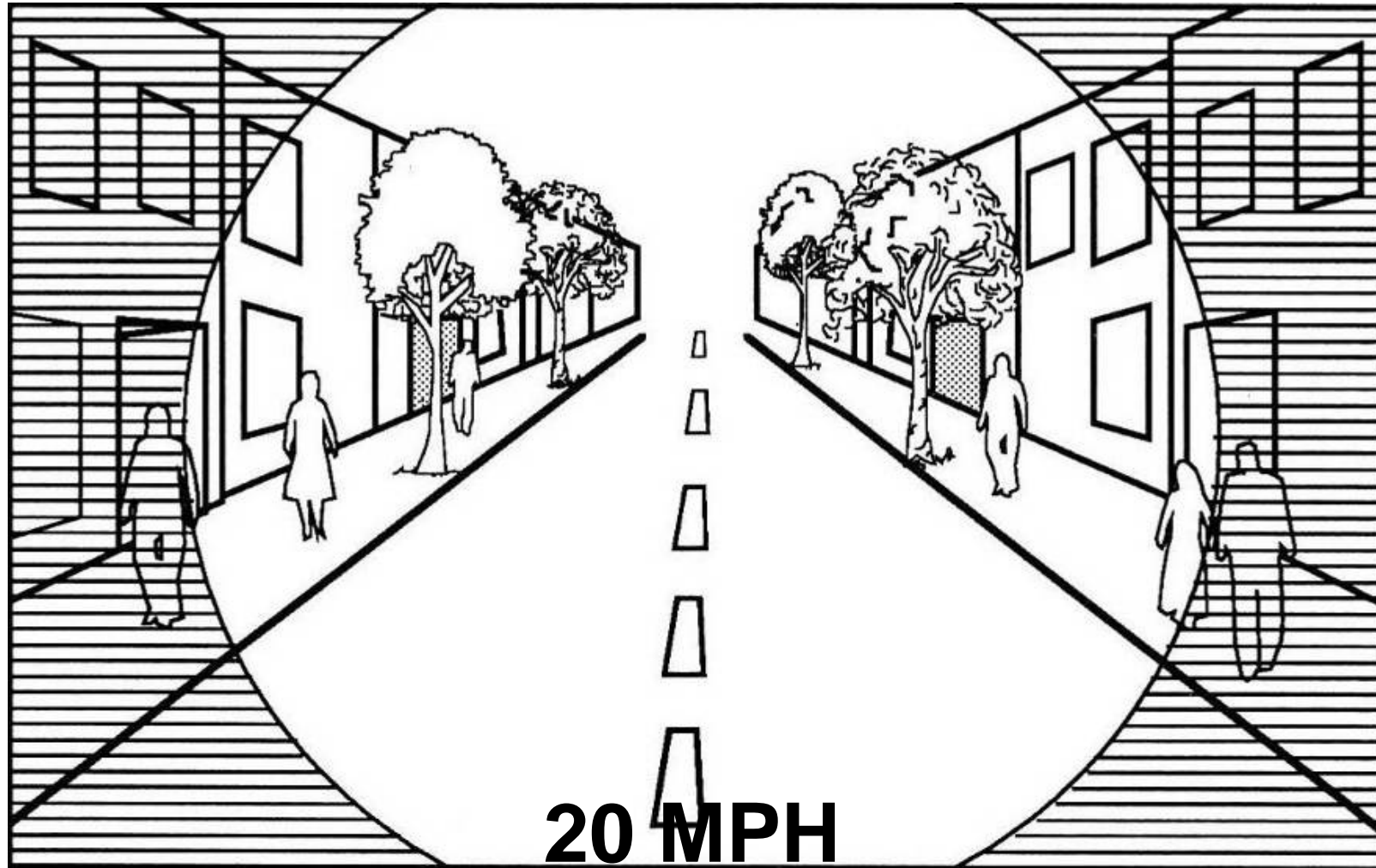
As speed increases, driver focuses less on surroundings

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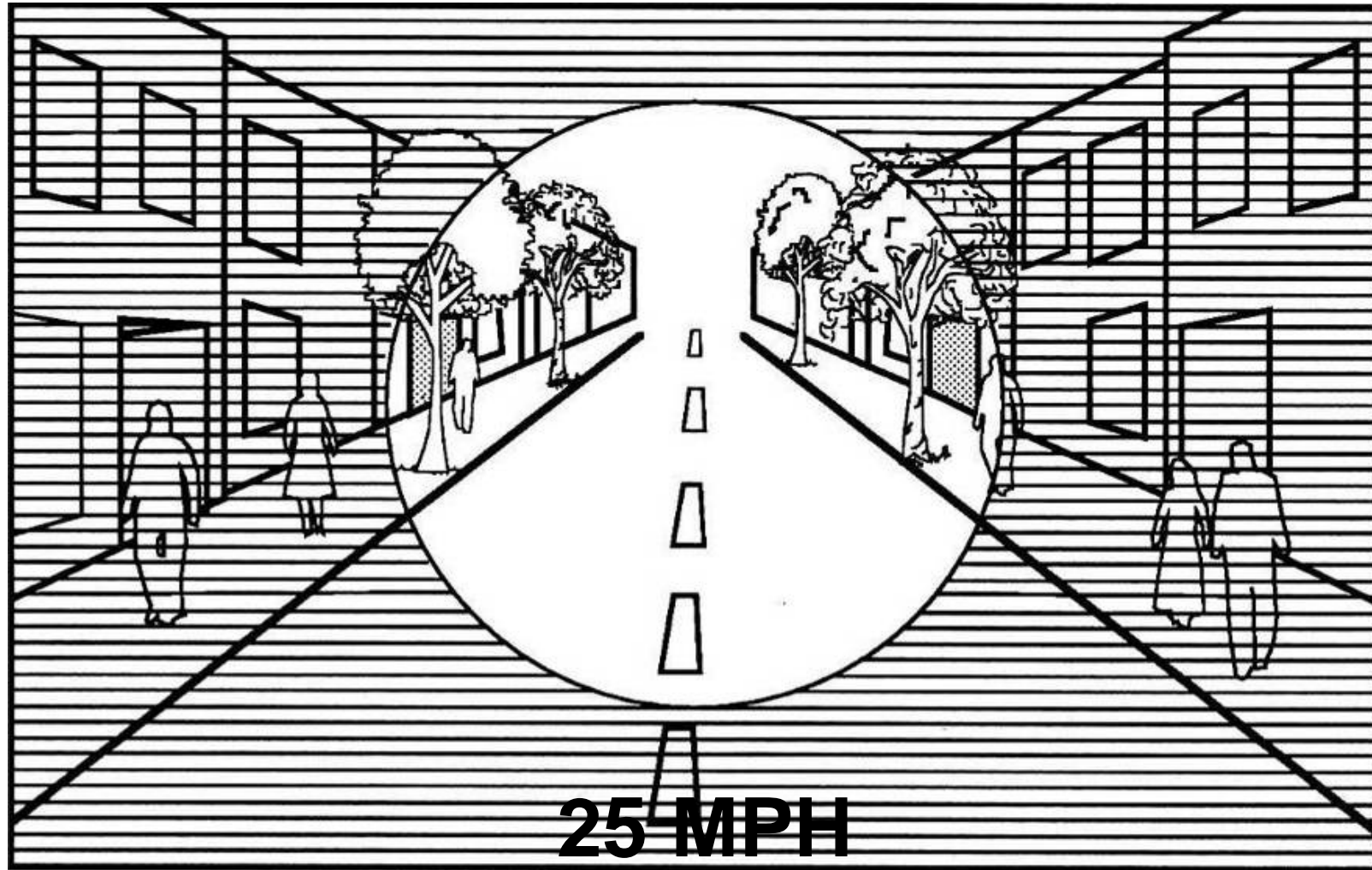
As speed increases, driver focuses less on surroundings

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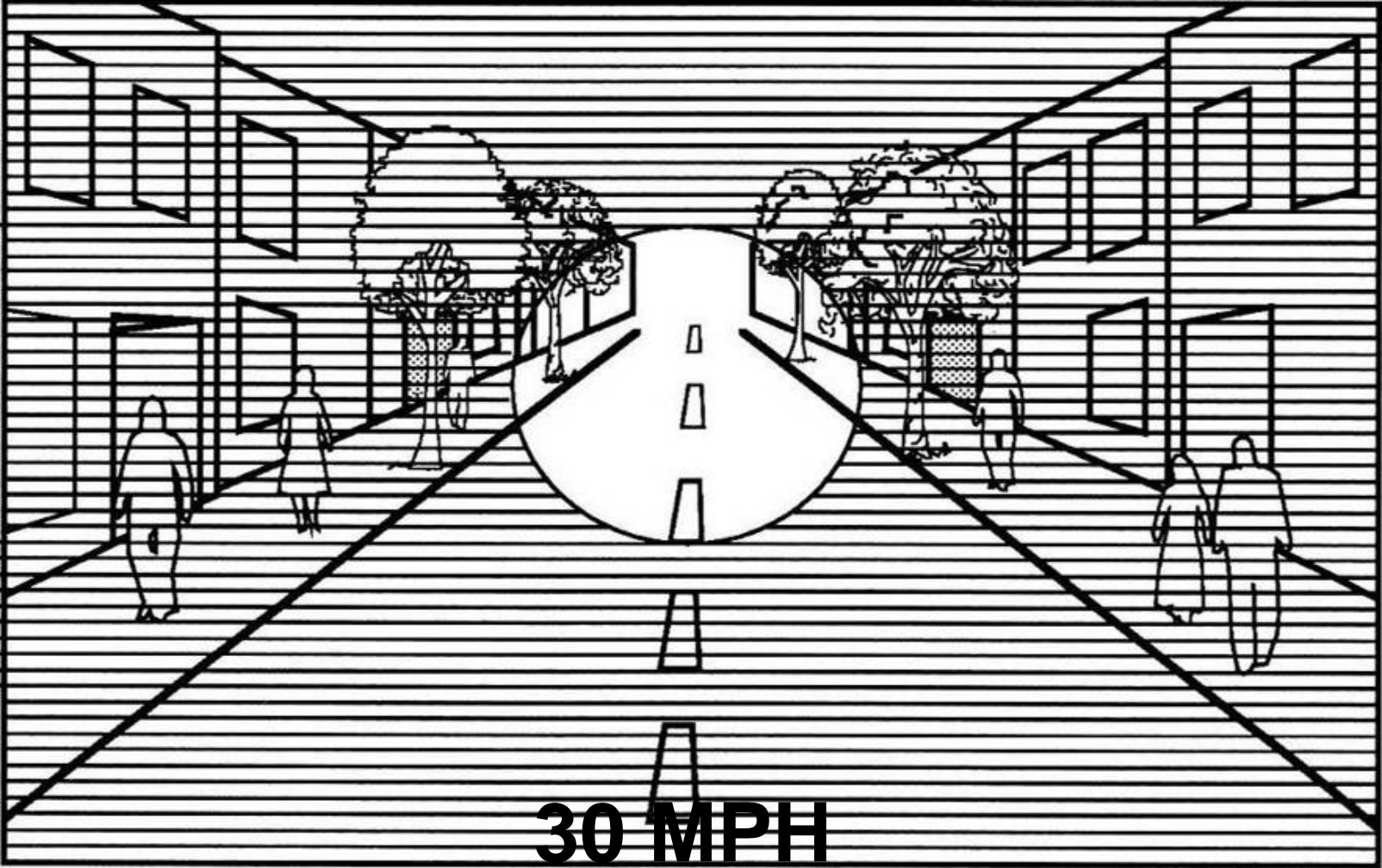


As speed increases, driver focuses less on surroundings

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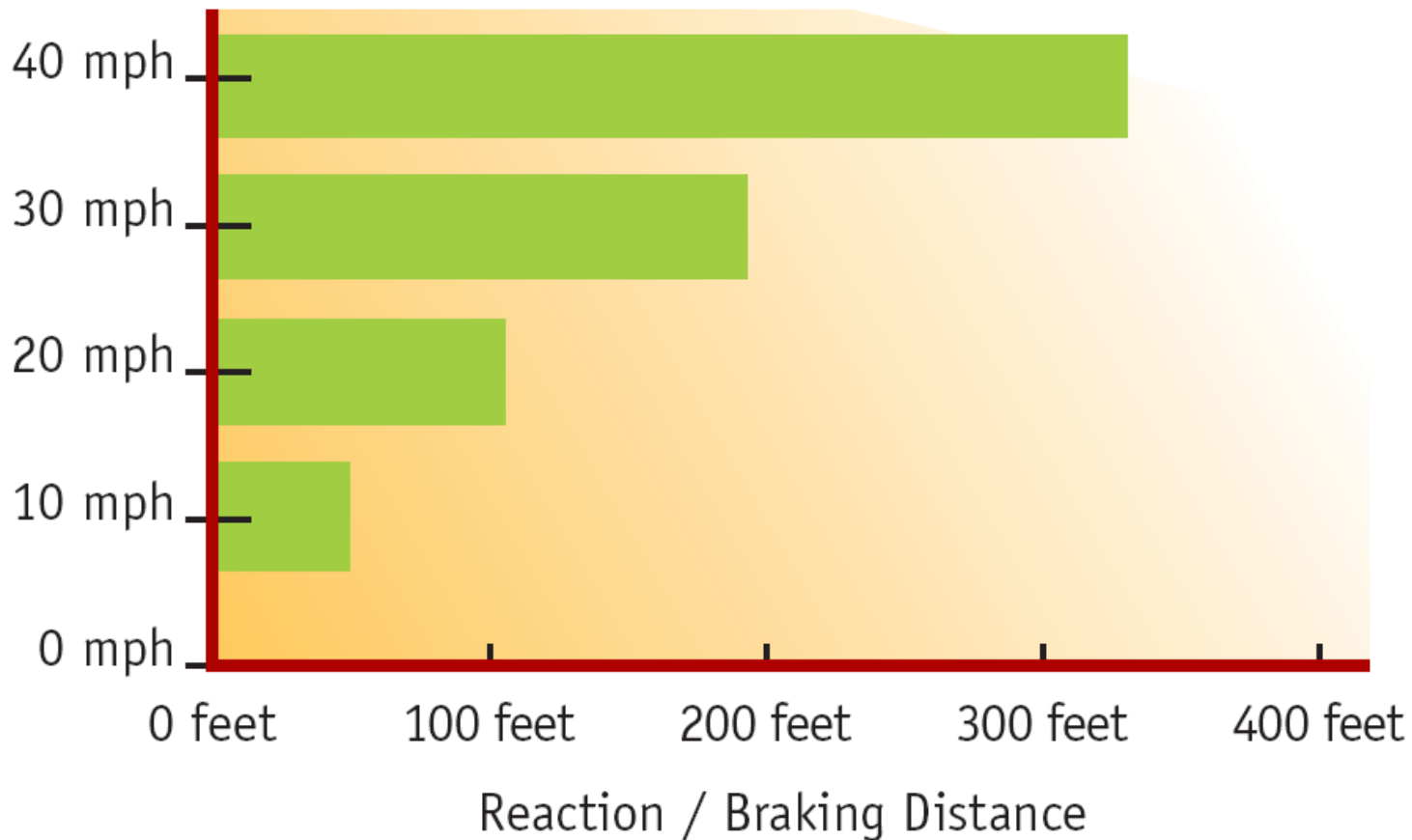


As speed increases, driver focuses less on surroundings



Speed Affects Crash Avoidance

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High speeds equate to greater reaction and stopping distance

Australian PSA on Speed

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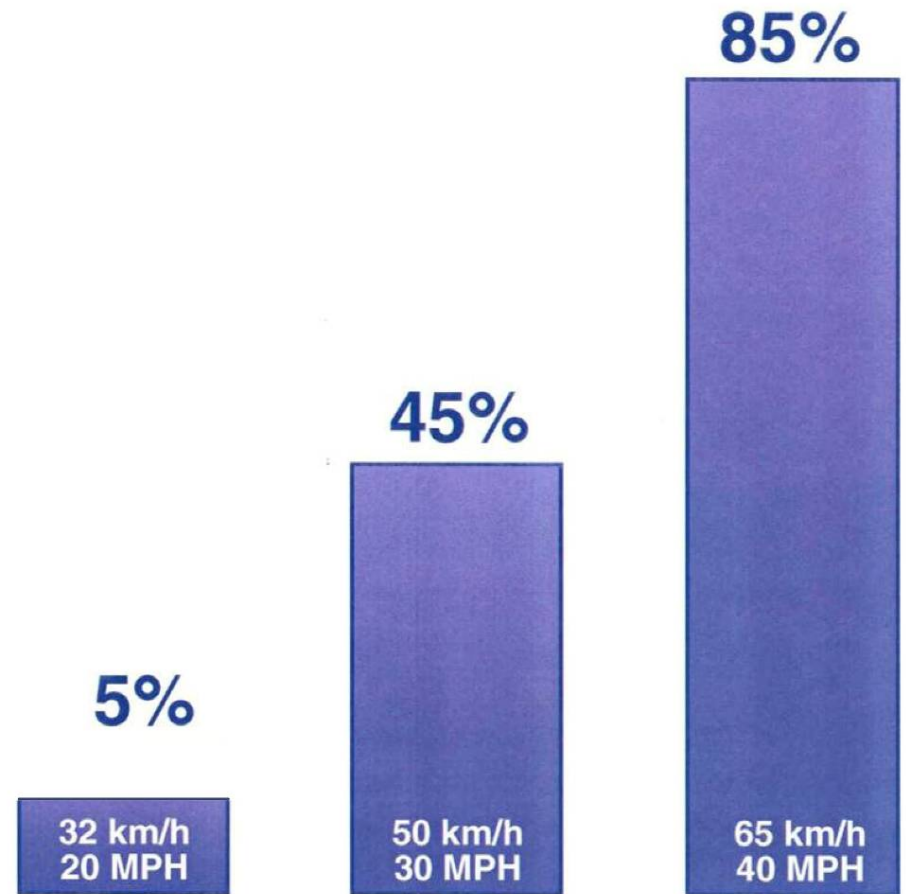
- 60 kph vs. 65 kph
- 37 mph vs. 40 mph



Speed Affects Crash Severity

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- High speeds lead to greater chance of serious injury & death



Sources:

Killing Speed and Saving Lives, United Kingdom DOT

Vehicle Travel Speeds and Pedestrian Injuries; NHTSA.DOT HS 809 021

Pedestrians' chances of death if hit by a motor vehicle



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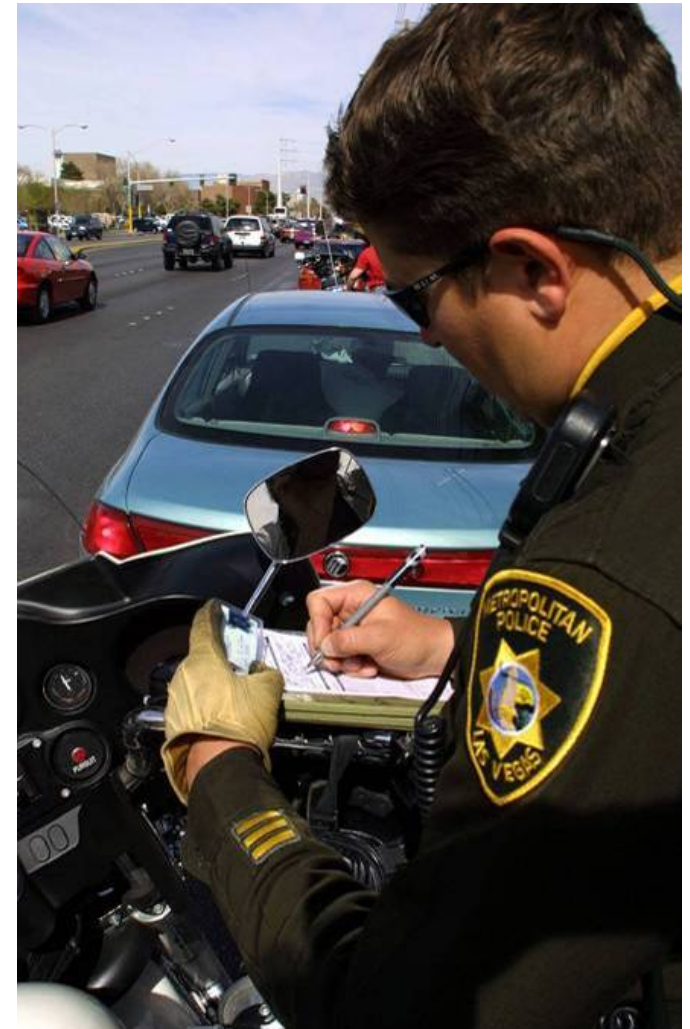
Los Gatos CA

- Traffic-calming methods such as curb extensions help slow traffic
- Resources:
 - PEDSAFE <http://www.pedbikesafe.org/PEDSAFE/countermeasures.cfm>
 - ITE Traffic Calming Library <http://www.ite.org/traffic/>

Speed Management

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- Speed management is the single most effective way to increase safety for all modes
- Speed limits must be realistic, consistent, and enforceable and able to be adjudicated.

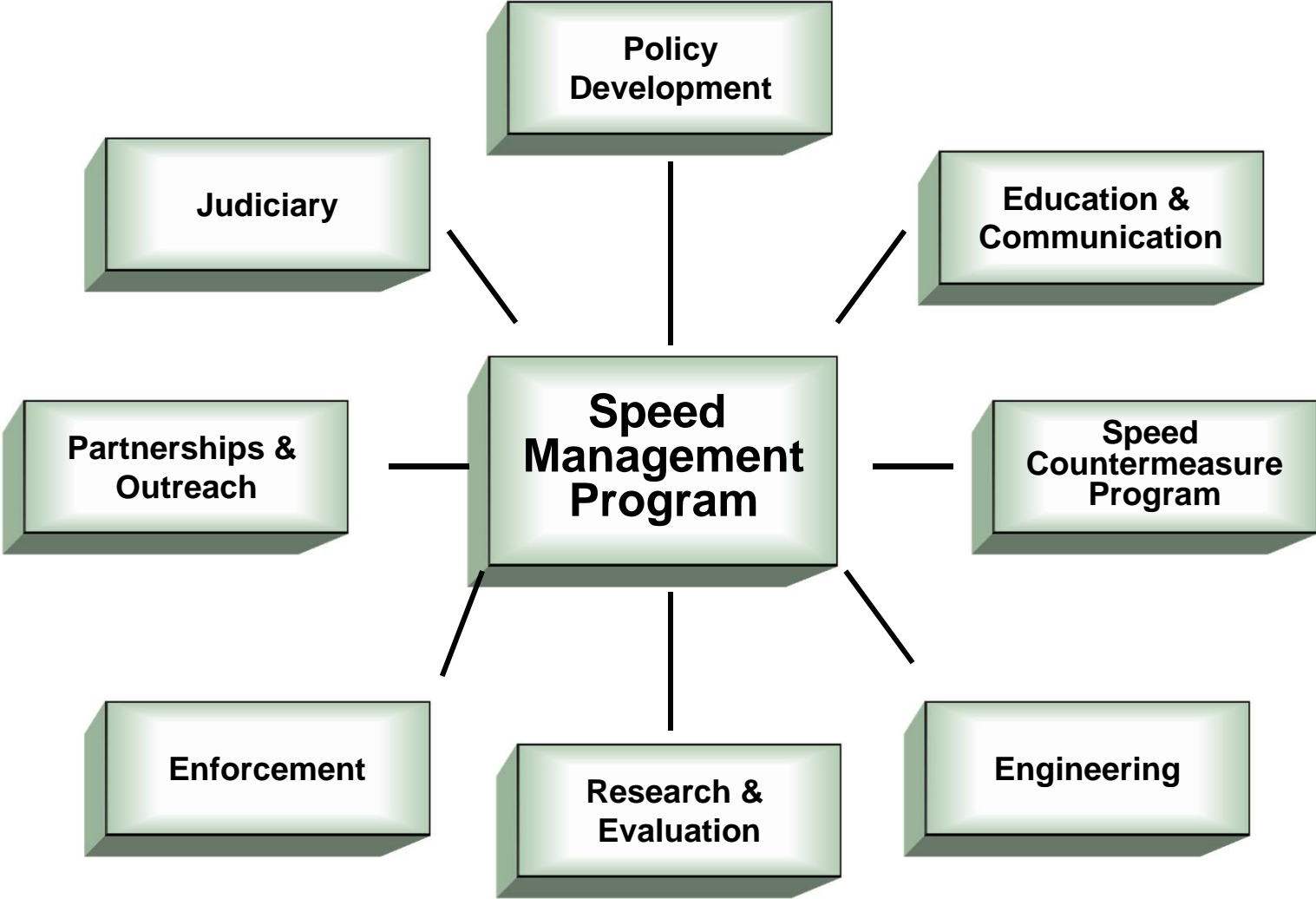


German Speed Management

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Comprehensive Speed Management Program



Speed Management Guidance and Strategic Initiatives

U.S. Department of Transportation
Federal Highway Administration

FHWA Safety
Safe Roads for a Safer Future
Investment in roadway safety saves lives

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- Additional Safety Programs & Initiatives
- Driver Safety Countermeasures

Speed Management Safety

Speeding—traveling too fast for conditions or in excess of the posted speed limits—is a factor in almost one-third of all fatal crashes. In 2011, there were 32,367 fatalities on our Nation's roadways, of which 9,944 were speeding-related – down 5 percent from the previous year! Speeding is a safety concern on all roads. Although much of the public concern about speeding has been focused on high-speed Interstates, nearly half of speeding-related fatalities occur on lower speed collector and local roads.

Speeding is a complex issue involving engineering, driving behavior, education, and enforcement. That's why the U.S. DOT has set up a multimodal, multidisciplinary Speed Management Team to attack the problem. The DOT Team has a formal charter [HTML, PDF 78KB] and a work plan. FHWA is the lead agency accountable for the engineering actions.

- USLIMITS2
- Facts & Statistics
- Policy
- Engineering Speed Limits
- Variable Speed Limits
- Traffic Calming
- Ongoing Research
- Reference Materials
- Related Web Site Links

<http://safety.fhwa.dot.gov/speedmgt/>

Uniform Guidelines for State Highway Safety Programs
NHTSA
November 2006

Highway Safety Program Guideline No. 19
Speed Management

Each State, in cooperation with its political subdivisions, tribal governments and other parties as appropriate, should develop and implement a comprehensive highway safety program reflective of State demographics to achieve a significant reduction in traffic crashes, fatalities, and injuries on public roads. The highway safety program should include a comprehensive speed management program that encourages people to voluntarily comply with speed limits. This guideline describes the components that a State speed management program should contain and the criteria that the program components should meet.

Speed management involves a balanced program effort that includes: defining the relationship between speed, spacing, and safety; applying road design and engineering measures to obtain appropriate speeds; setting speed limits that are safe and reasonable; applying enforcement efforts and appropriate technology that effectively address speeders and deter speeding; marketing communication and educational messages that focus on high-risk drivers; and soliciting the cooperation, support, and leadership of traffic safety stakeholders.

I. PROGRAM MANAGEMENT

While speeding is a national problem, effective solutions must be applied locally. The success of a speed management program is enhanced by coordination and cooperation among the engineering, enforcement, and educational disciplines. To reduce speeding-related fatalities, injuries, and crashes, State, local, or tribal governments should:

- Provide the NHTSA Speed Management Workshop that offers a comprehensive approach to speed management through partnering with a broad range of transportation and safety disciplines. This multidisciplinary team improves communication and cooperation and facilitates the development of innovative strategies for reducing speeding-related fatalities and injuries.
- Establish a Speed Management Working Group as outlined in the Speed Management Workshop Guidelines to develop and implement a localized action plan that identifies specific speeding and speeding-related crash problems and the actions necessary to address problems and to establish the credibility of posted speed limits.

<http://www.nhtsa.dot.gov/nhtsa/whatsup/tea21/tea21programs/pages/SpeedManagement.htm>

DOT HS 809 924
September 2005

Speed Management Strategic Initiative

SPEED MANAGEMENT
ENGINEERING
ENFORCEMENT
EDUCATION

U.S. Department of Transportation
Federal Highway Administration
National Center for Highway Traffic Safety Administration

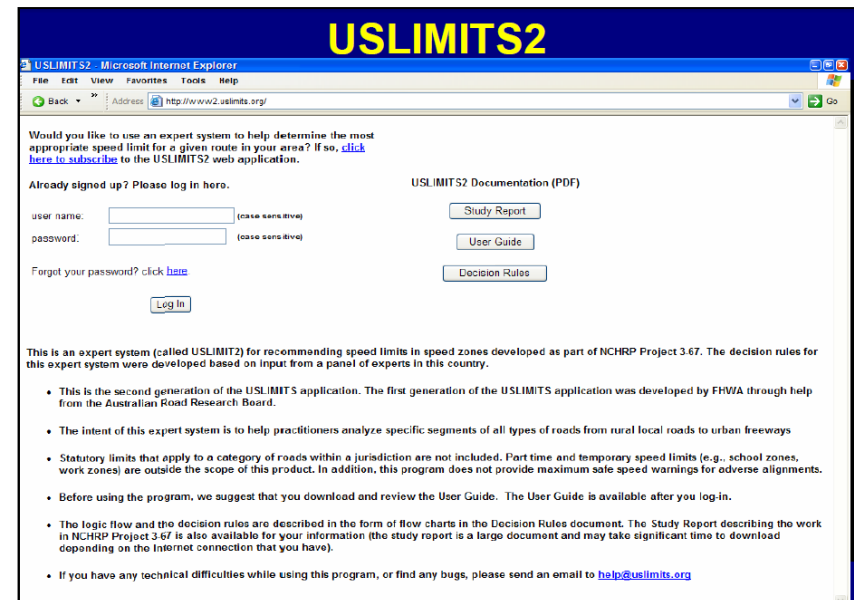
nhtsa
National Highway Traffic Safety Administration

<http://www.nhtsa.dot.gov/people/injury/enforce/SpeedManagement-content/>

USLIMITS

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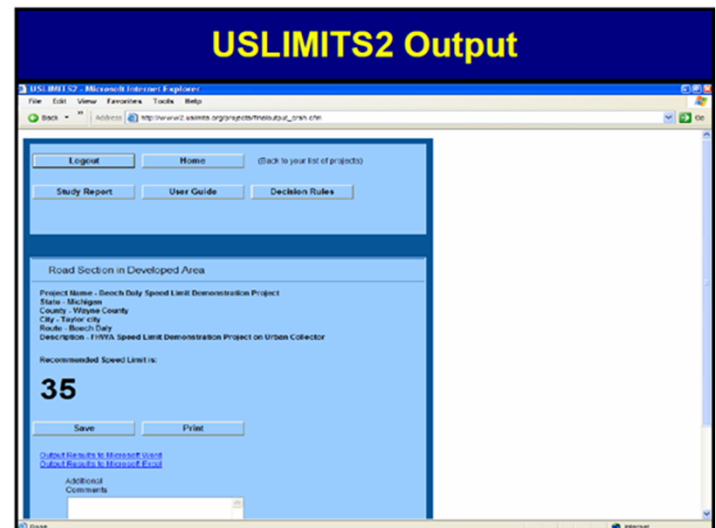
- ❑ Web-based expert advisor system.
- ❑ User friendly, logical, and objective.
- ❑ Calculates speed limit based on site specific information.
- ❑ <http://www2.uslimits.org/>



USLIMITS Benefits

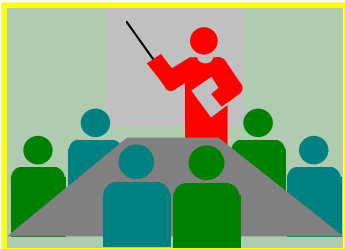
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- ❑ Encourages consistent speed limits;
- ❑ Addresses Public and Political awareness acceptance and concern;
- ❑ Reduces speed differential;
- ❑ Supports the integrity of engineering, enforcement, and adjudication.



Discussion:

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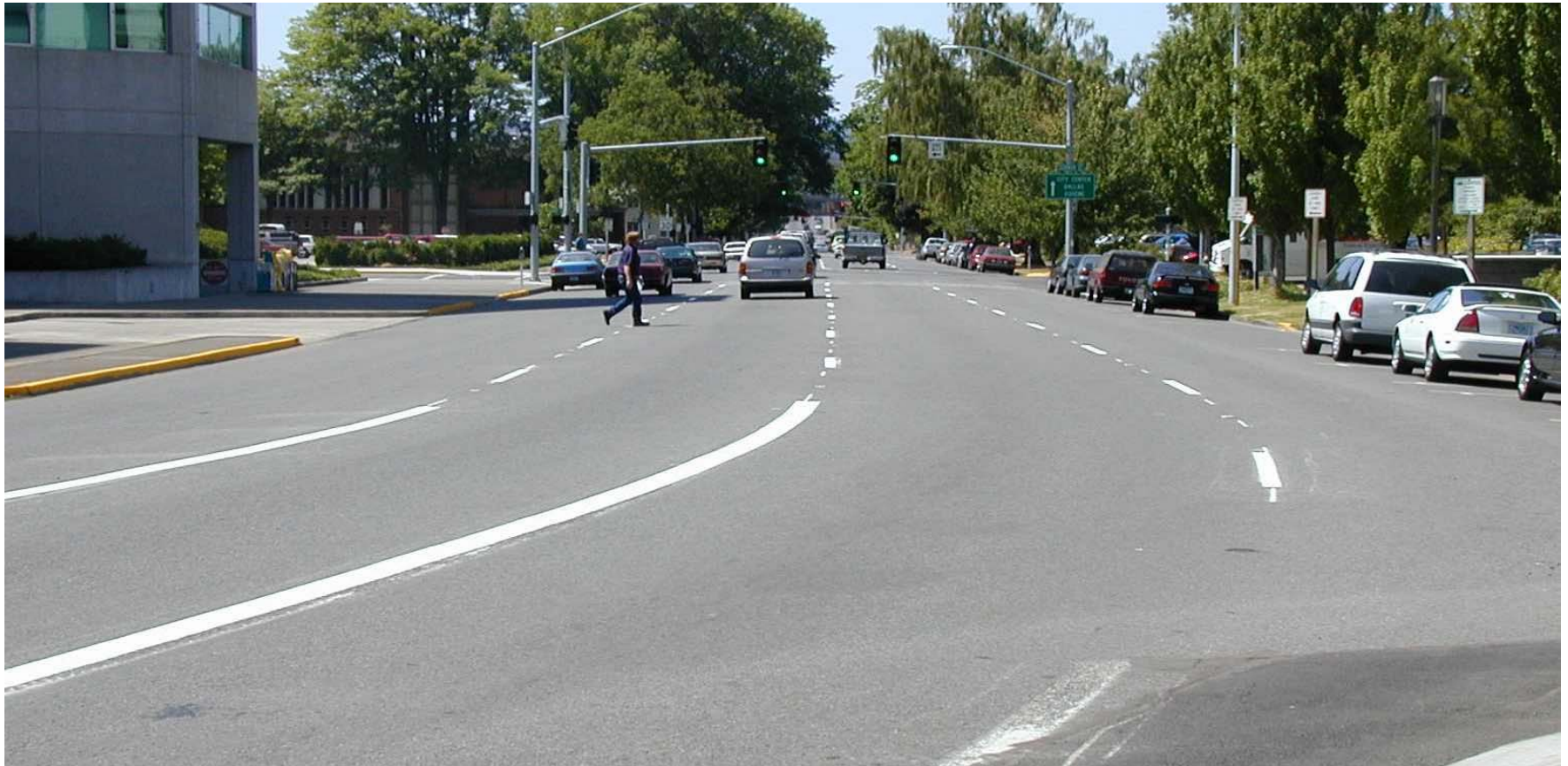


- What are your policies & practices regarding setting, enforcing, and adjudicating speed limits?

Principle # 5

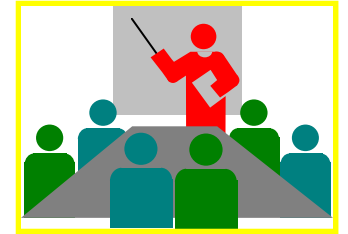
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Salem OR



Pedestrians will cross where it's most convenient

Discussion:



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Tampa FL

How far are you willing to go out of your way for an “improved” crossing?

Would you walk: 25' 50' 75' 100' 125'



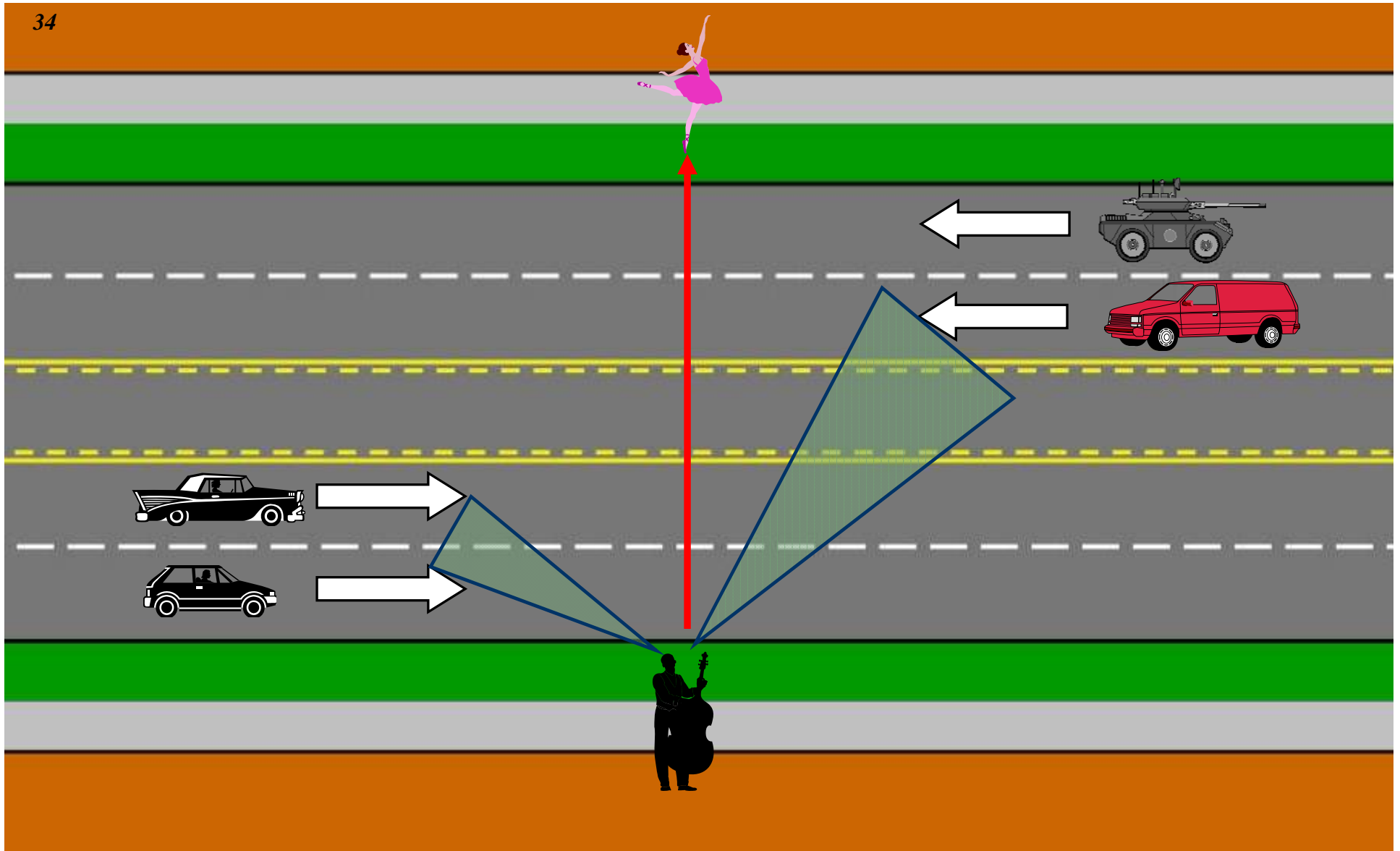
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Midblock vs. Intersection

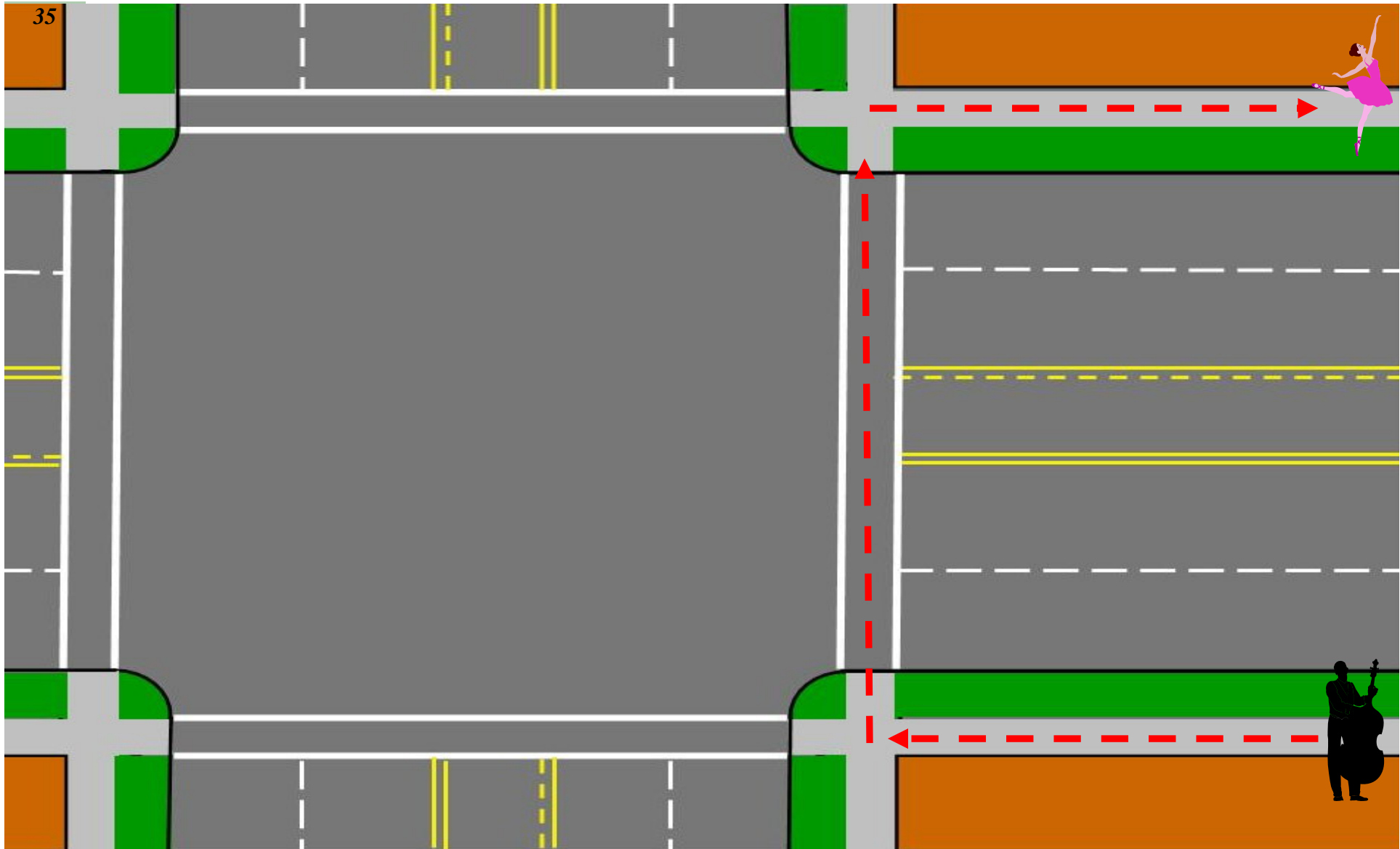
What is the relative risk of crossing midblock vs. crossing at an intersection?

Midblock: Pedestrian faces 2 directions of traffic

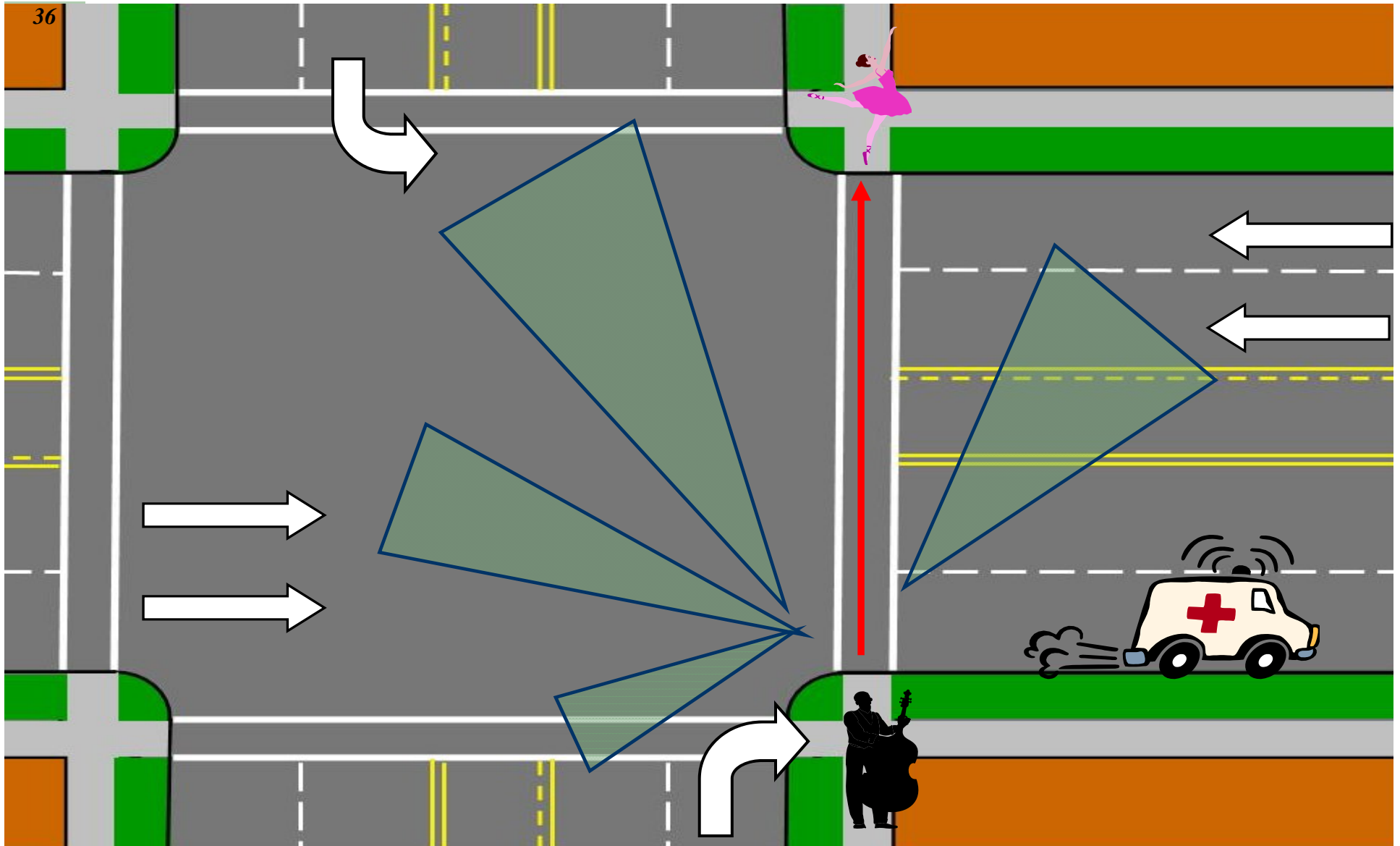
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Intersection: pedestrian must walk out-of-direction



Intersection: pedestrian faces other conflicts



Midblock vs. Intersection

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Tampa FL

- People choose based on their perceived risk
- The data is inconclusive



Let's look at the State laws

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- Duties of drivers toward pedestrians
- Duties of pedestrians
- Is crossing midblock illegal?

NY Laws governing pedestrian right of way

- § 1151. Pedestrians' right of way in crosswalks.
- When traffic-control signals are not in place or not in operation the driver of a vehicle shall yield the right of way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within a crosswalk on the roadway upon which the vehicle is traveling, except that any pedestrian crossing a roadway at a point where a pedestrian tunnel or overpass has been provided shall yield the right of way to all vehicles.
- No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impractical for the driver to yield.
- Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle.

NY Laws governing pedestrian right of way

- § 1152. Crossing at other than crosswalks.
- Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right of way to all vehicles upon the roadway.
- Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right of way to all vehicles upon the roadway.
- No pedestrian shall cross a roadway intersection diagonally unless authorized by official traffic-control devices; and, when authorized to cross diagonally, pedestrians shall cross only in accordance with the official traffic-control devices pertaining to such crossing movements.

Learning Outcomes: Crossing Principles

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You should now be able to:

- Describe how and why people cross the street
- Describe how drivers and pedestrians perceive each other
- Describe principles for users to cross a road safely
- Select midblock vs. intersection locations
- Identify how speed affects pedestrian safety

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Questions?